

Supplementary Material

Synthesis of New *N*-Norbonylimide Substituted Amide Derivatives: Their Reductive Heck and Domino Heck Reactions

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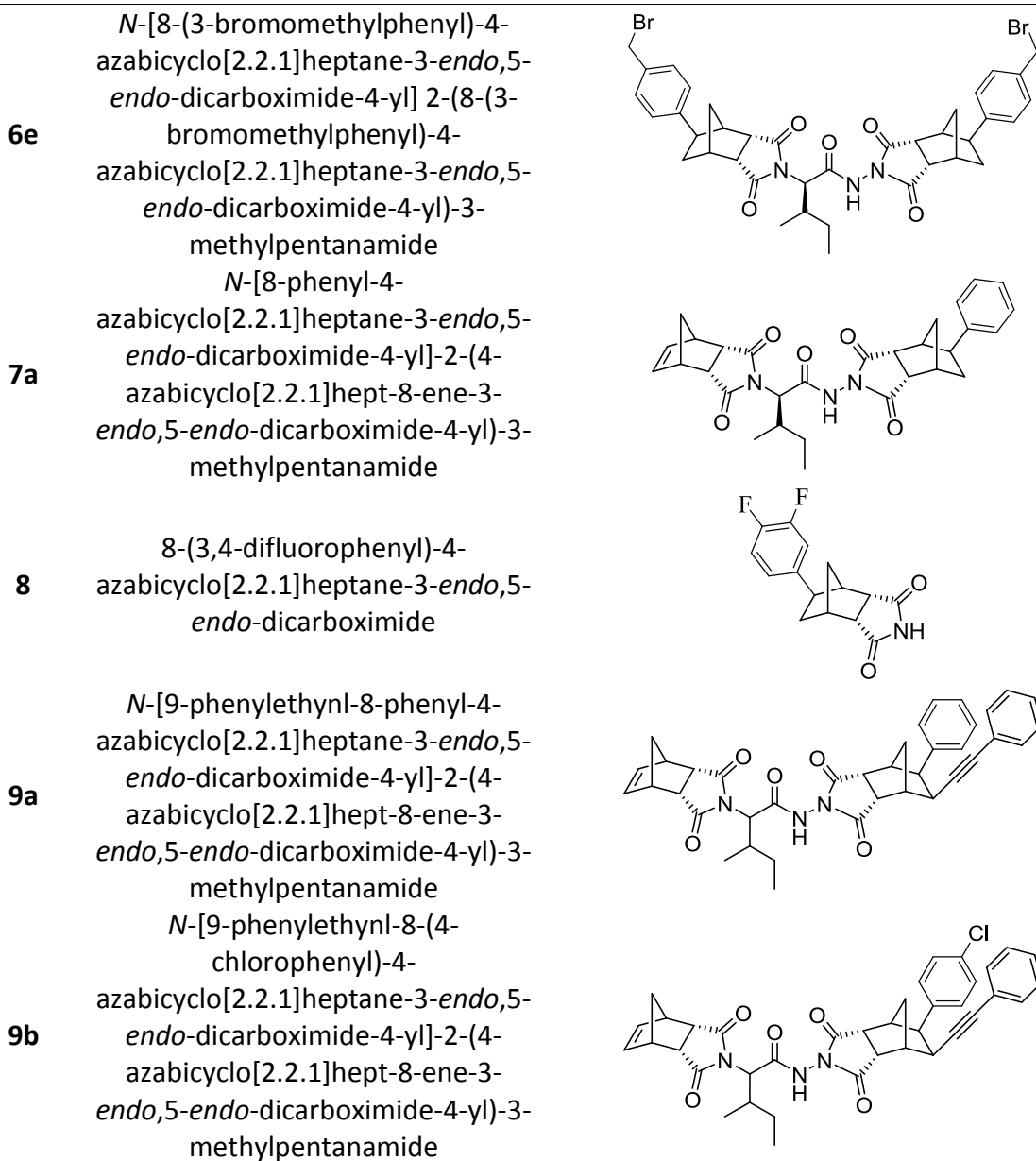
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Table S1. List of the synthesized compound structure.

| Entry | Compound Name | Compound Structure |
|-------|---|--------------------|
| 4 | 2-(4-Azabicyclo[2.2.1]hept-8-ene-3- <i>endo</i> ,5- <i>endo</i> -dicarboximide-4-yl)-3-methyl pentanoyl chloride | |
| 5 | <i>N</i> -4-Azabicyclo[2.2.1]hept-8-ene-3- <i>endo</i> ,5- <i>endo</i> -dicarboximide-4-yl 2-(4-azabicyclo[2.2.1]hept-8-ene-3- <i>endo</i> ,5- <i>endo</i> -dicarboximide-4-yl)-3-methylpentanamide | |
| 6a | <i>N</i> -[8-Phenyl-4-azabicyclo[2.2.1]heptane-3- <i>endo</i> ,5- <i>endo</i> -dicarboximide-4-yl] 2-(8-phenyl-4-azabicyclo[2.2.1]heptane-3- <i>endo</i> ,5- <i>endo</i> -dicarboximide-4-yl)-3-methylpentanamide | |
| 6b | <i>N</i> -[8-(4-chlorophenyl)-4-azabicyclo[2.2.1]heptane-3- <i>endo</i> ,5- <i>endo</i> -dicarboximide-4-yl]-2-(8-(4-chlorophenyl)-4-azabicyclo[2.2.1]heptane-3- <i>endo</i> ,5- <i>endo</i> -dicarboximide-4-yl)-3-methylpentanamide | |
| 6c | <i>N</i> -[8-Morpholino-4-azabicyclo[2.2.1]heptane-3- <i>endo</i> ,5- <i>endo</i> -dicarboximide-4-yl] 2-(8-morpholino-4-azabicyclo[2.2.1]heptane-3- <i>endo</i> ,5- <i>endo</i> -dicarboximide-4-yl)-3-methylpentanamide | |
| 6d | <i>N</i> -[8-(2-thienyl)-4-azabicyclo[2.2.1]heptane-3- <i>endo</i> ,5- <i>endo</i> -dicarboximide-4-yl] 2-(8-(2-thienyl)-4-azabicyclo[2.2.1]heptane-3- <i>endo</i> ,5- <i>endo</i> -dicarboximide-4-yl)-3-methylpentanamide | |



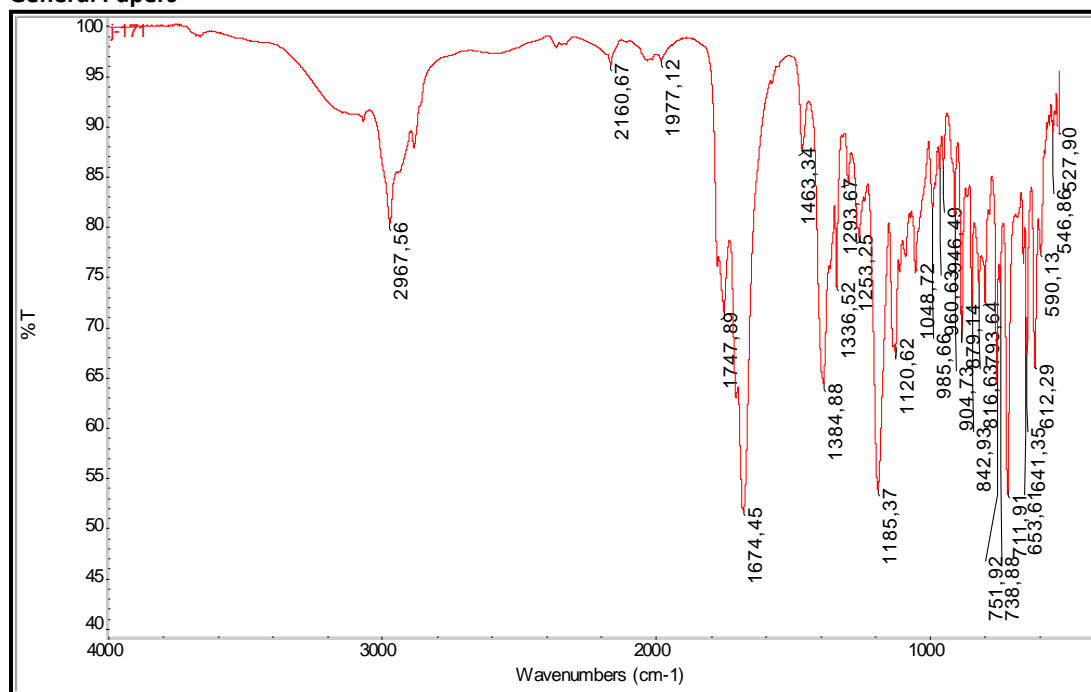


Figure S1. FTIR Spectrum of Compound 4 (ATR).

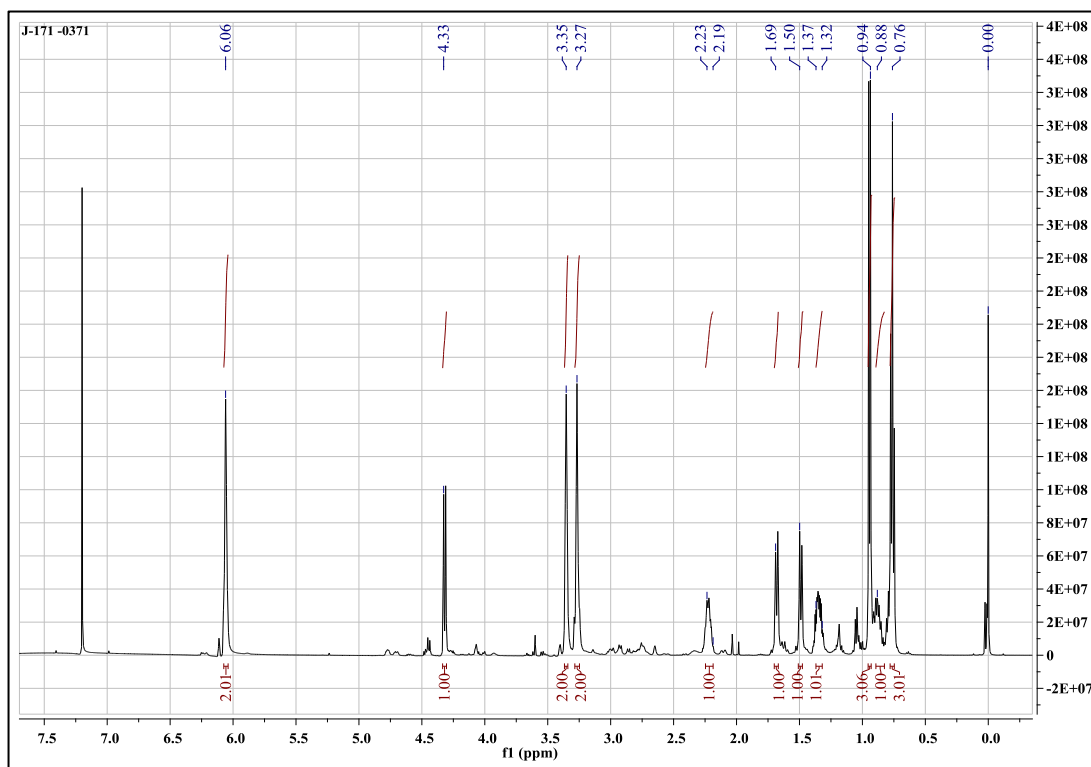


Figure S2. ^1H NMR Spectrum of Compound 4 (CDCl_3).

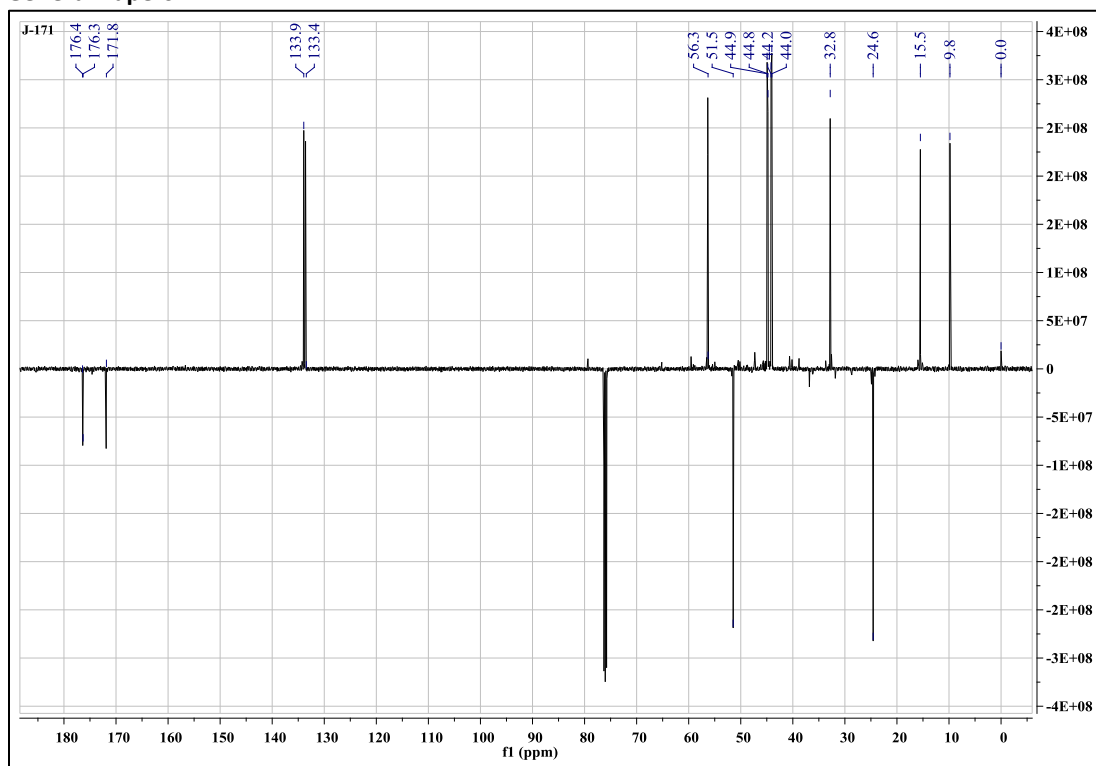


Figure S3. APT Spectrum of Compound 4 (CDCl₃).

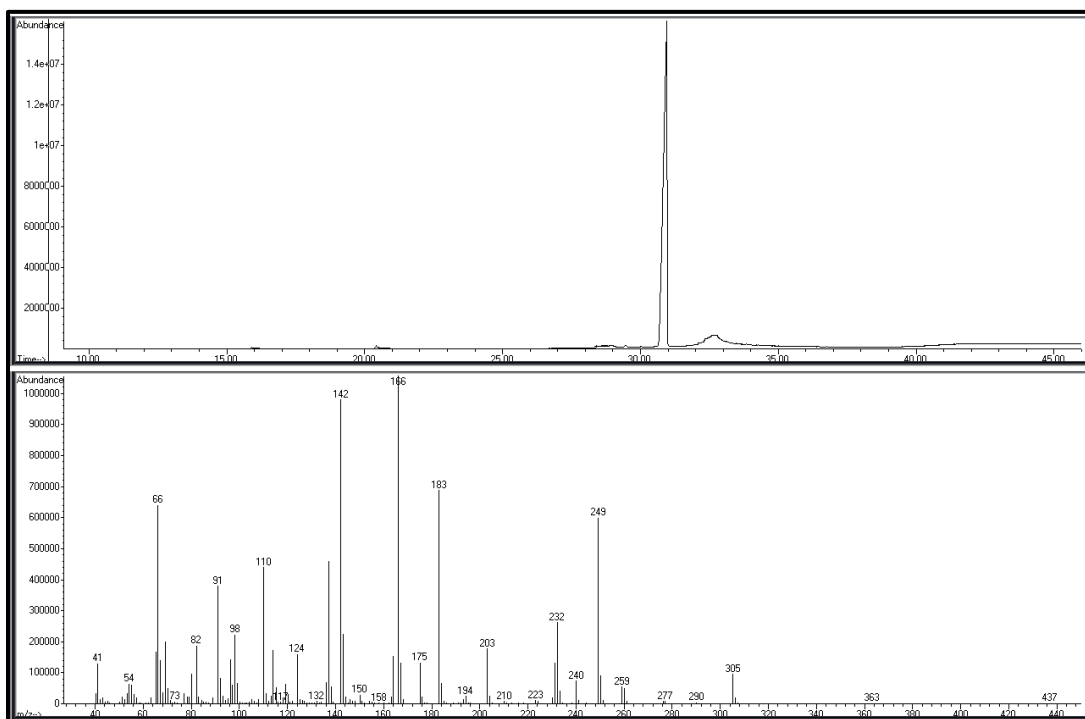


Figure S4. GC-MS Spectrum of Compound 4.

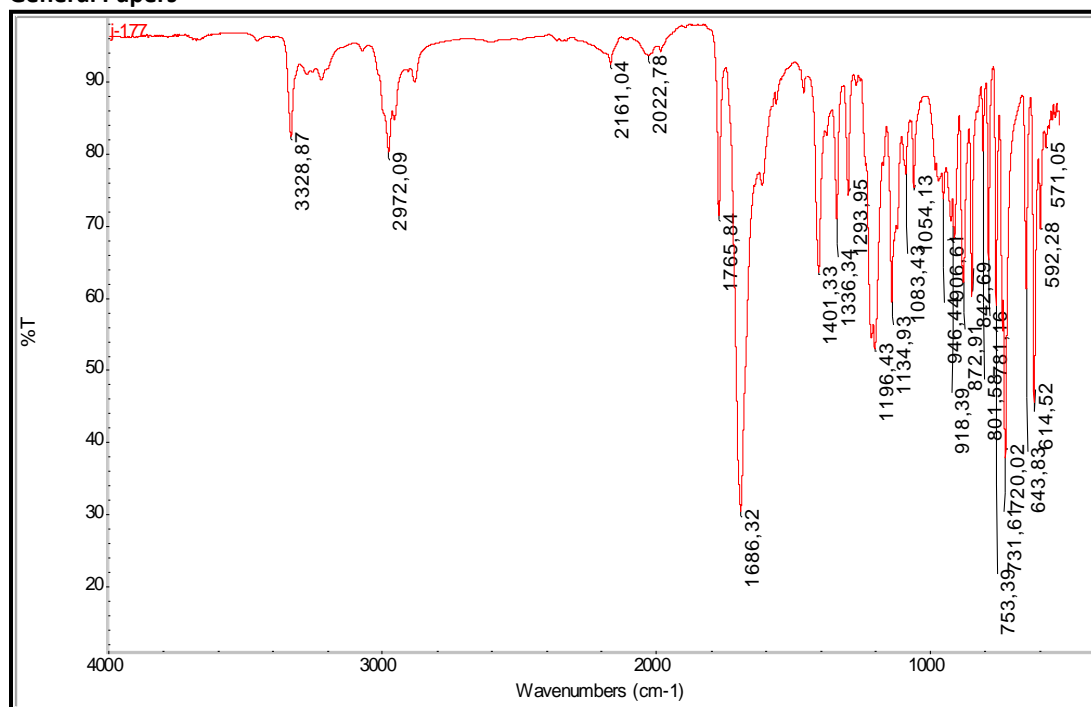


Figure S5. FTIR Spectrum of Compound 5 (ATR).

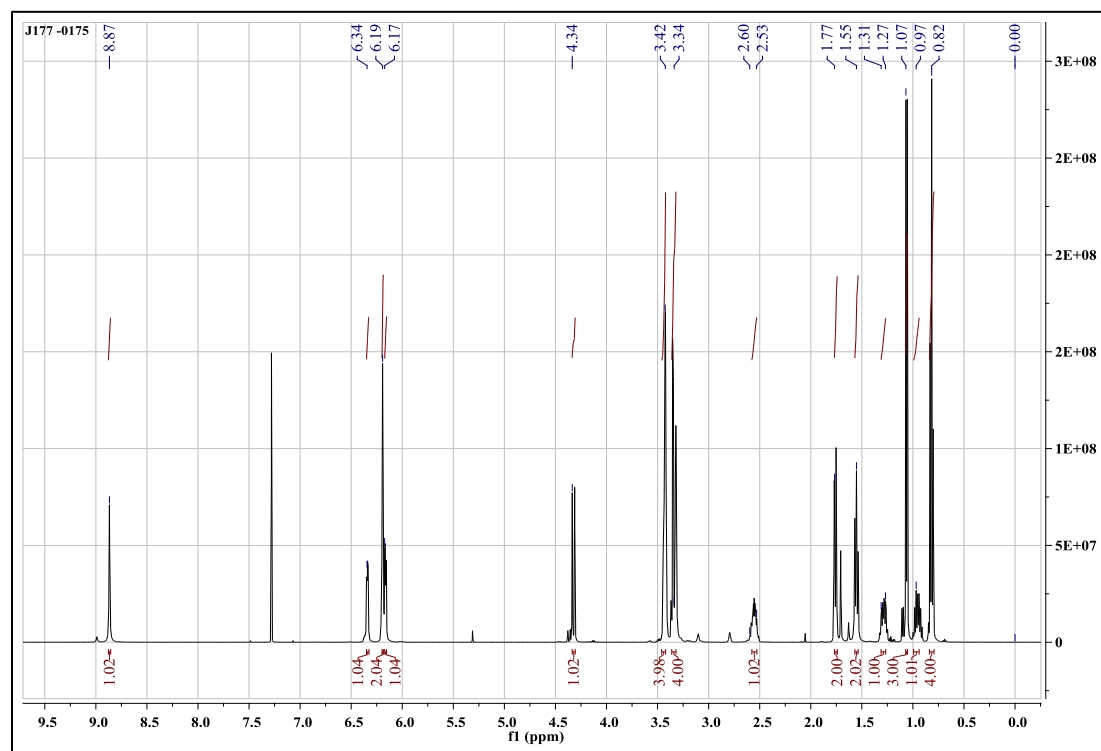


Figure S6. ^1H NMR Spectrum of Compound 5 (CDCl_3).

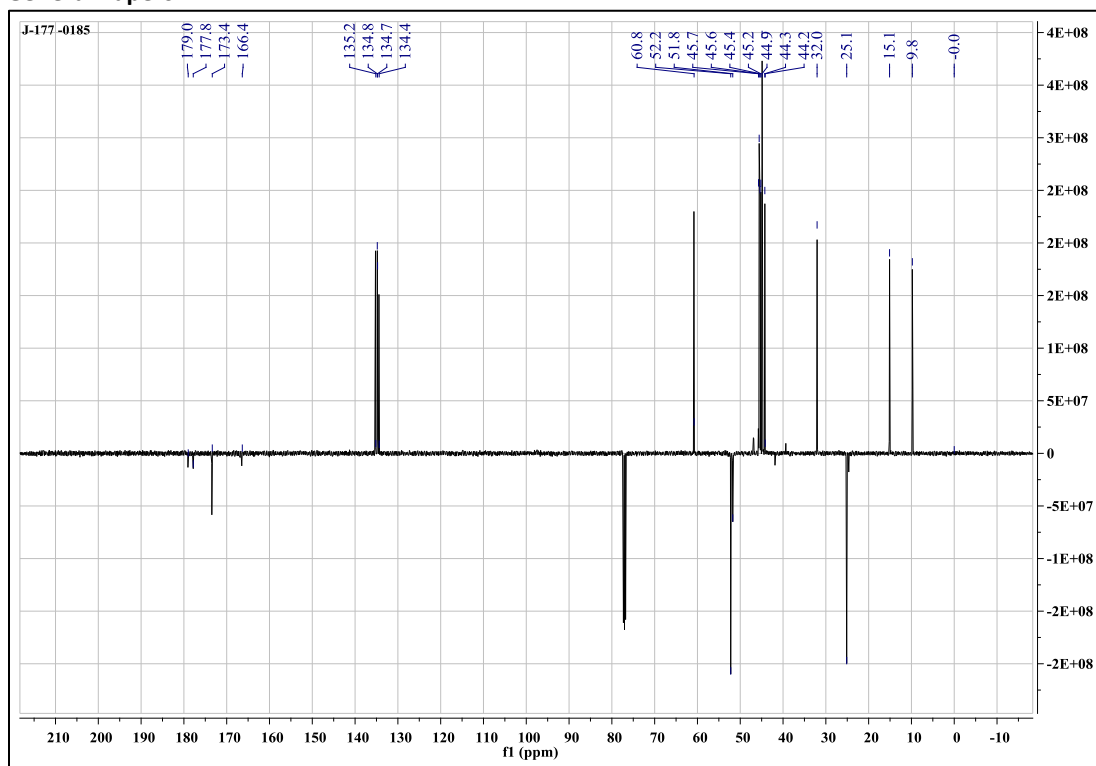


Figure S7. APT Spectrum of Compound 5 (CDCl₃).

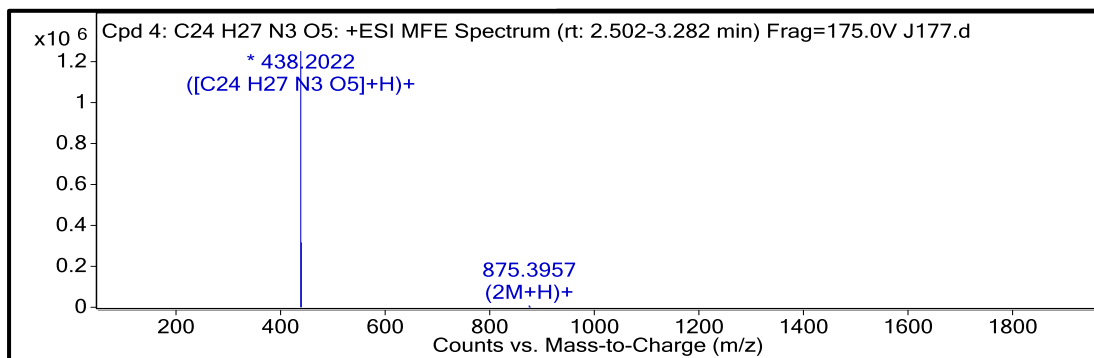


Figure S8. QToF Spectrum of Compound 5.

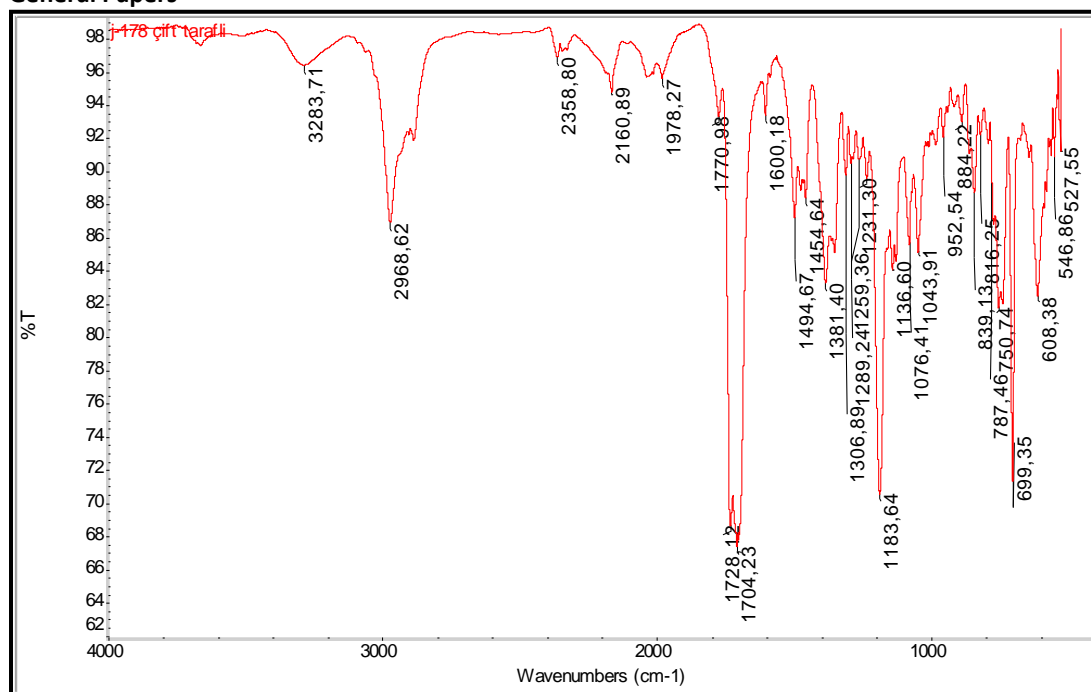
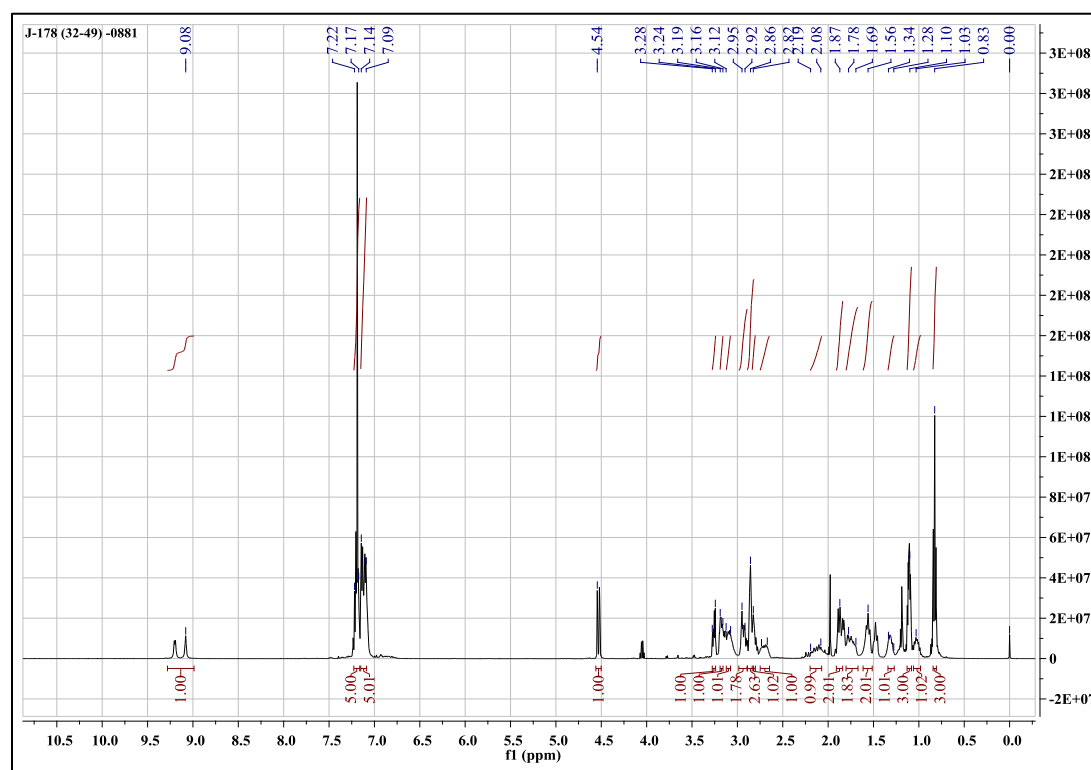


Figure S9. FTIR Spectrum of Compound 6a (ATR).

Figure S10. ^1H NMR Spectrum of Compound 6a (CDCl_3).

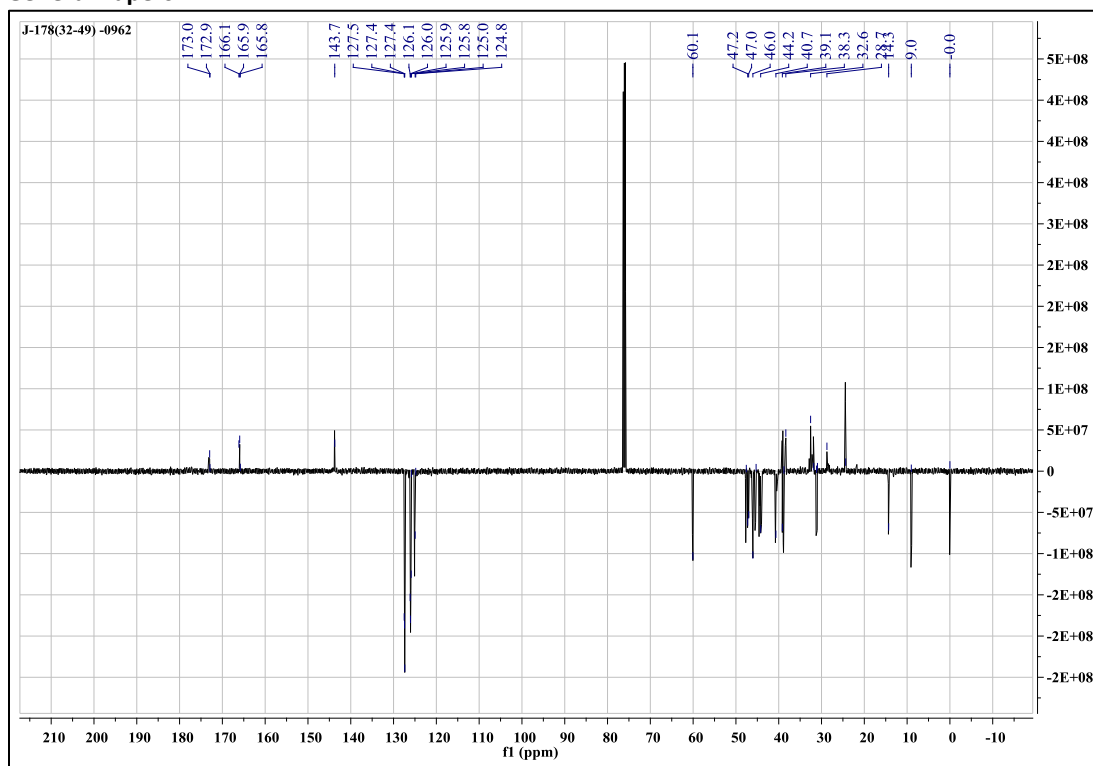


Figure S11. APT Spectrum of Compound 6a (CDCl₃).

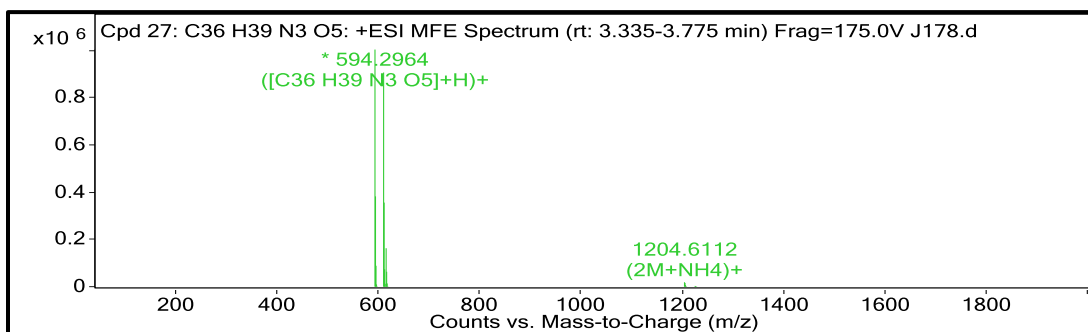
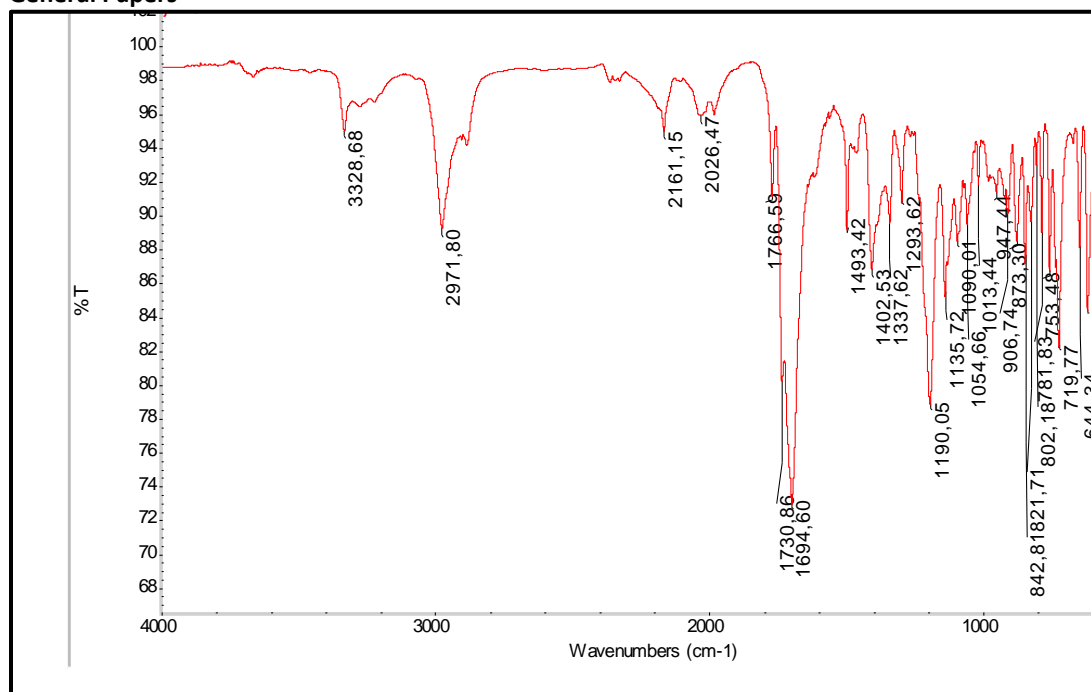
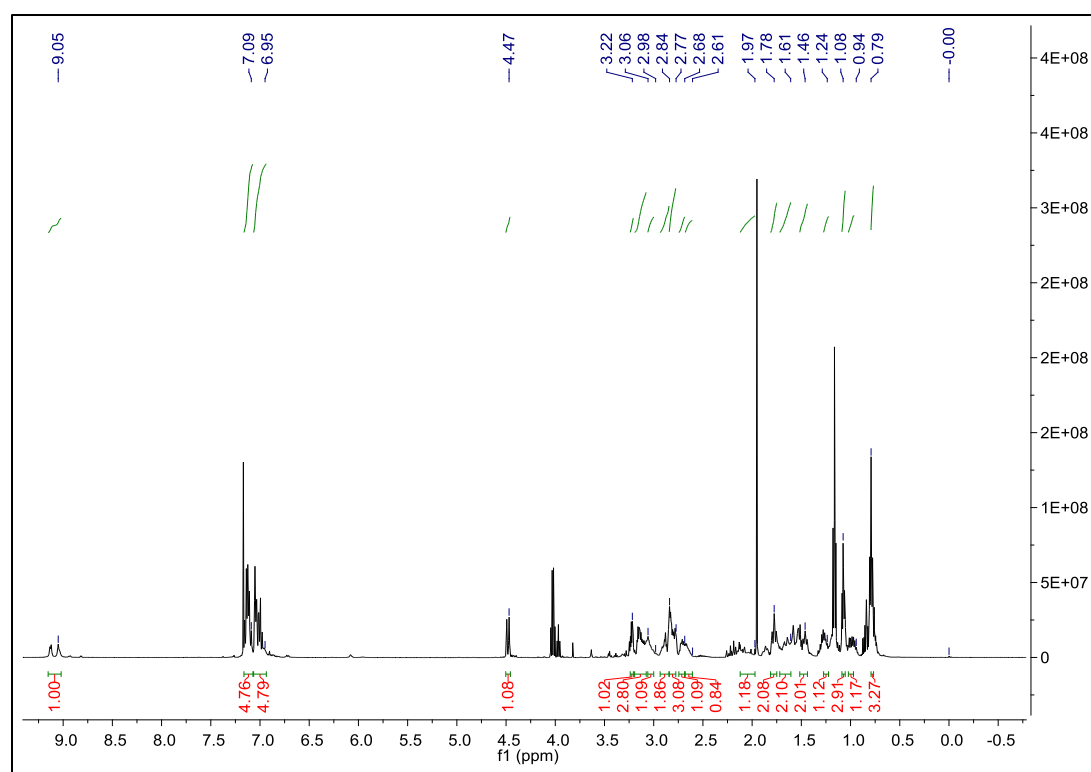


Figure S12. QToF Spectrum of Compound 6a.

Figure S13. FTIR Spectrum of Compound **6b** (ATR).Figure S14. ^1H NMR Spectrum of Compound **6b** (CDCl_3).

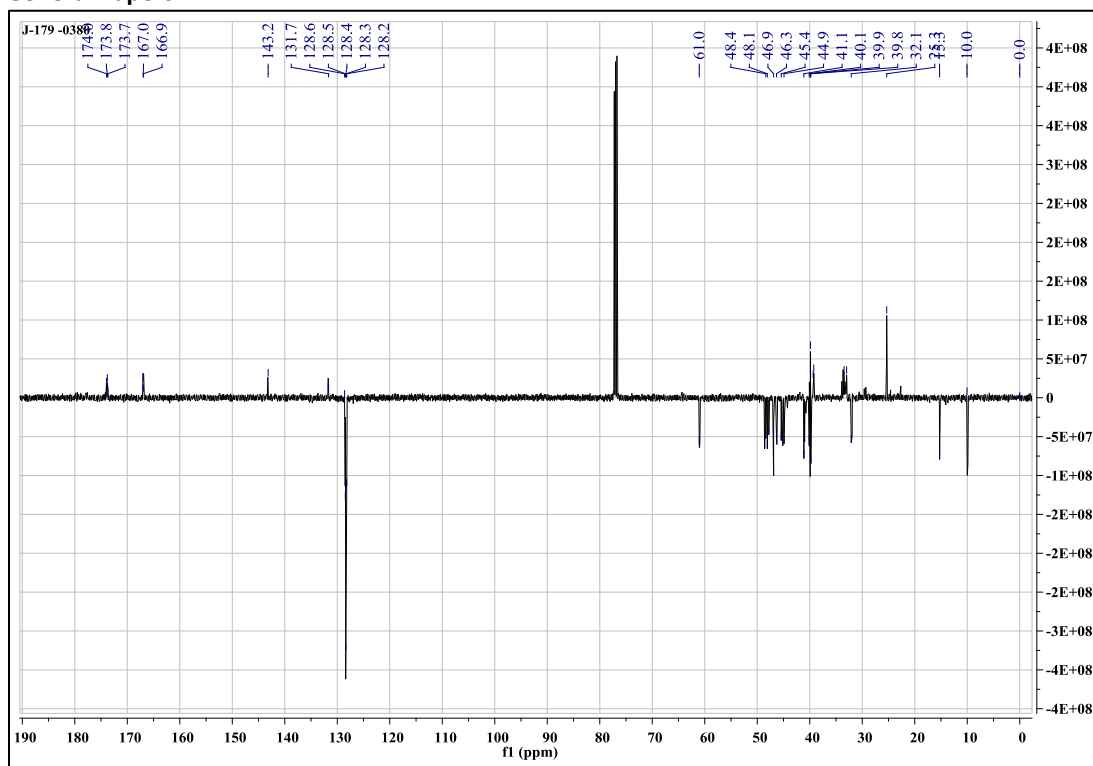


Figure S15. APT Spectrum of Compound **6b** (CDCl_3).

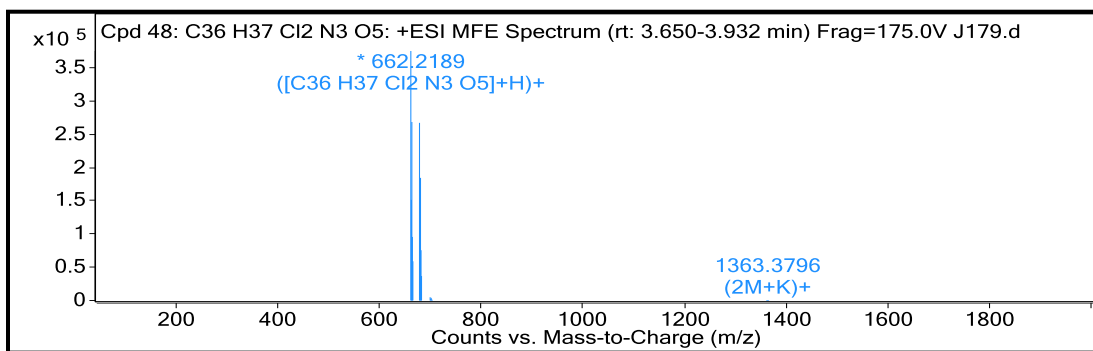
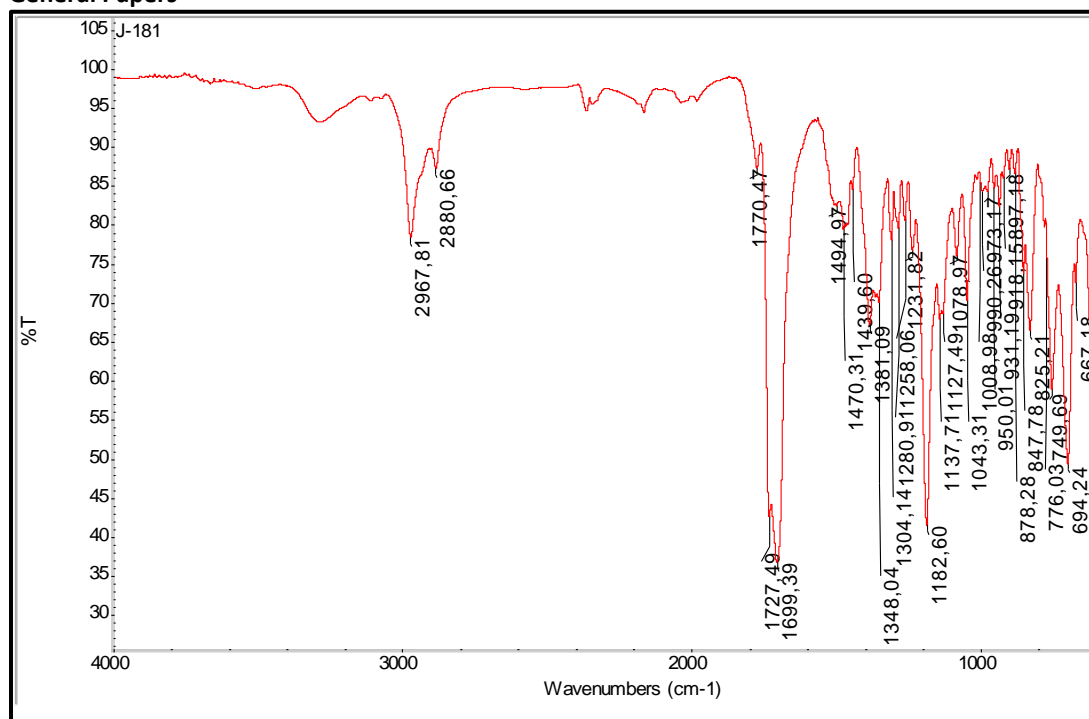
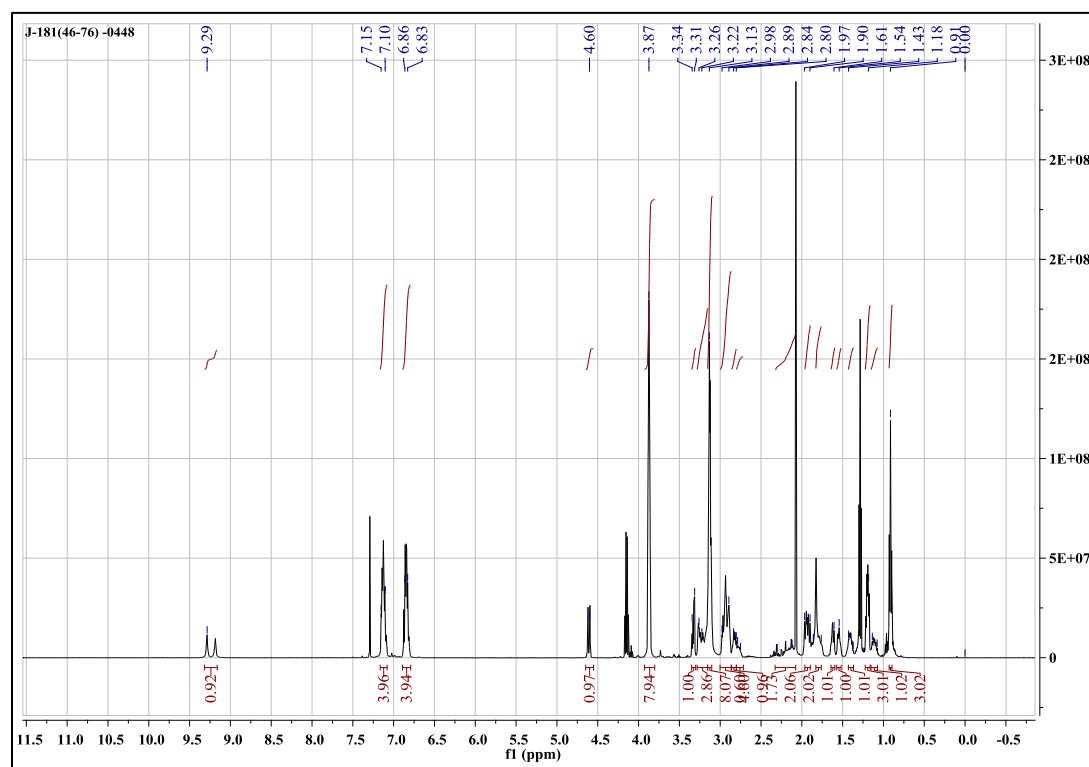


Figure S16. QToF Spectrum of Compound **6b**.

Figure S17. FTIR Spectrum of Compound **6c** (ATR).Figure S18. ¹H NMR Spectrum of Compound **6c** (CDCl₃).

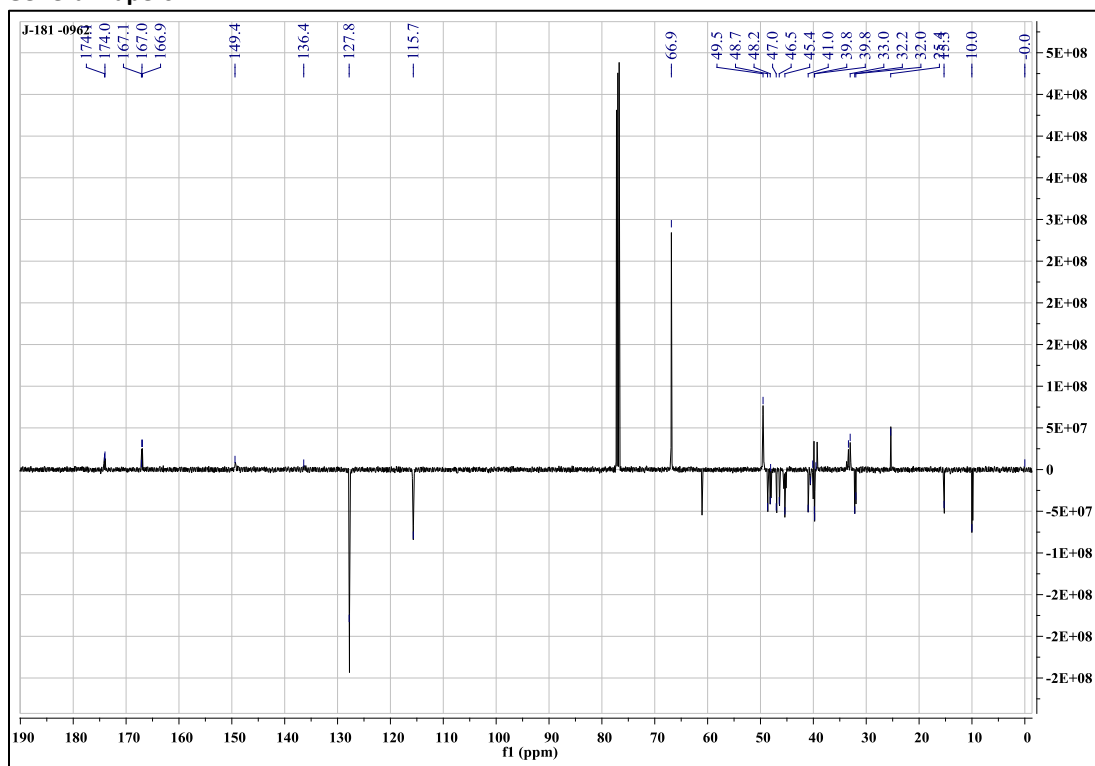


Figure S19. APT Spectrum of Compound 6c (CDCl₃).

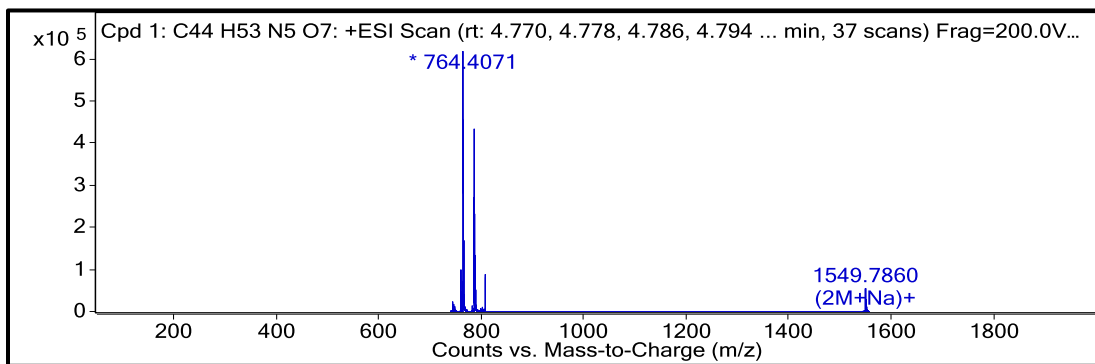


Figure S20. QToF Spectrum of Compound 6c.

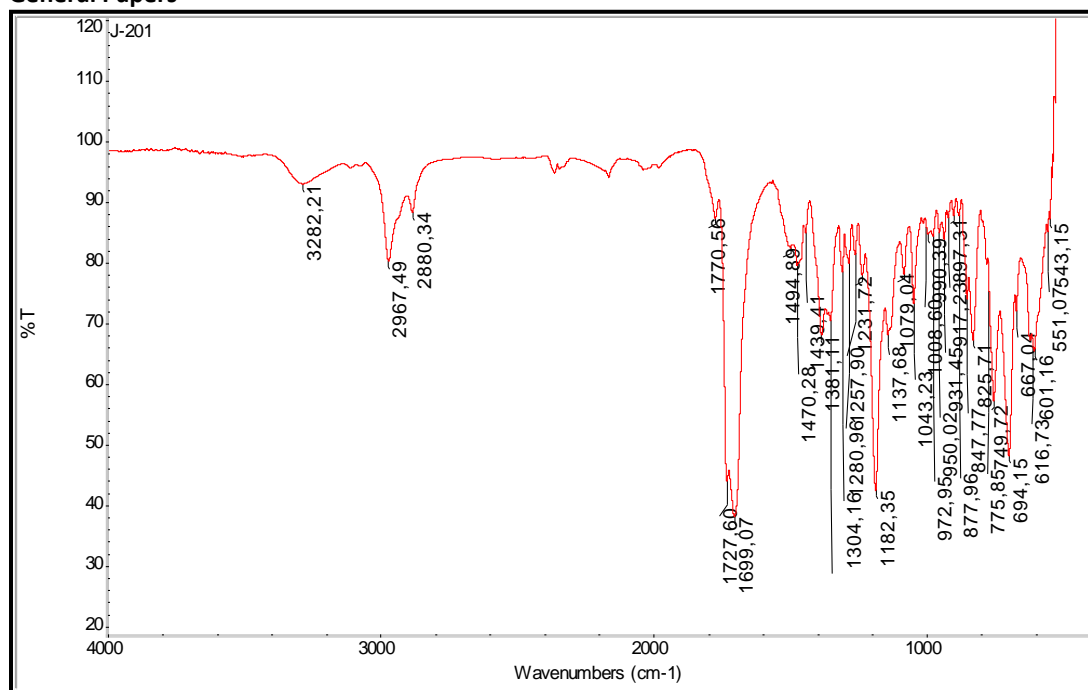
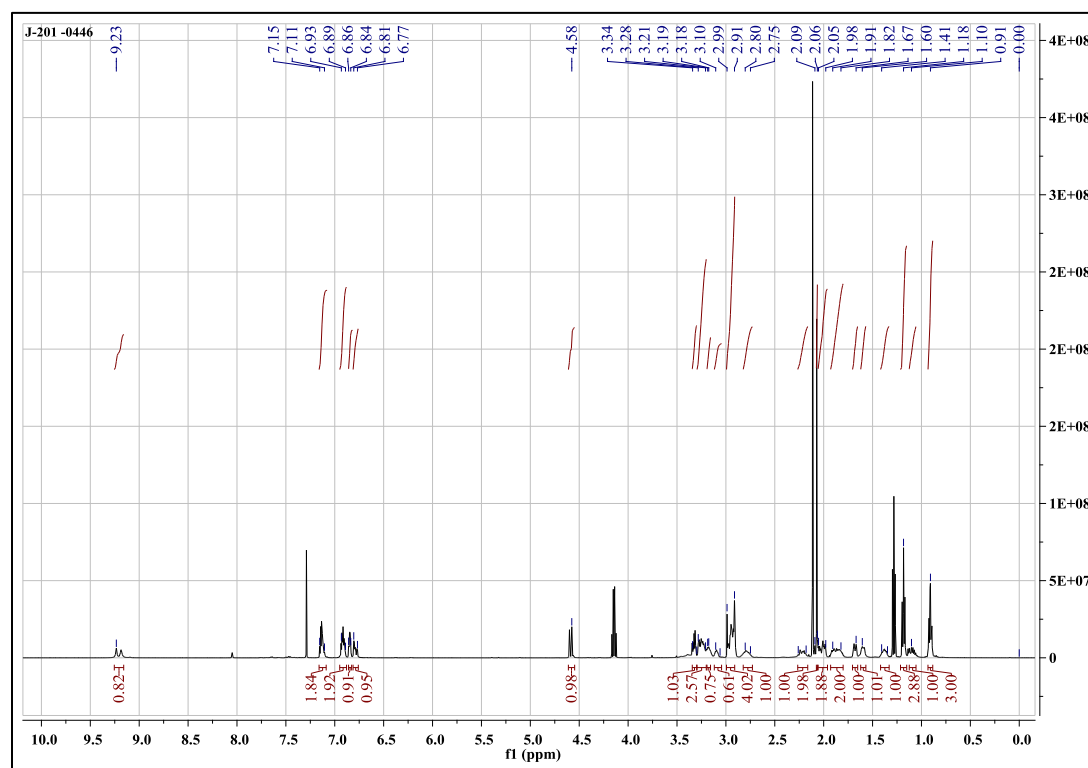


Figure S21. FTIR Spectrum of Compound 6d (ATR).

Figure S22. ^1H NMR Spectrum of Compound 6d (CDCl_3).

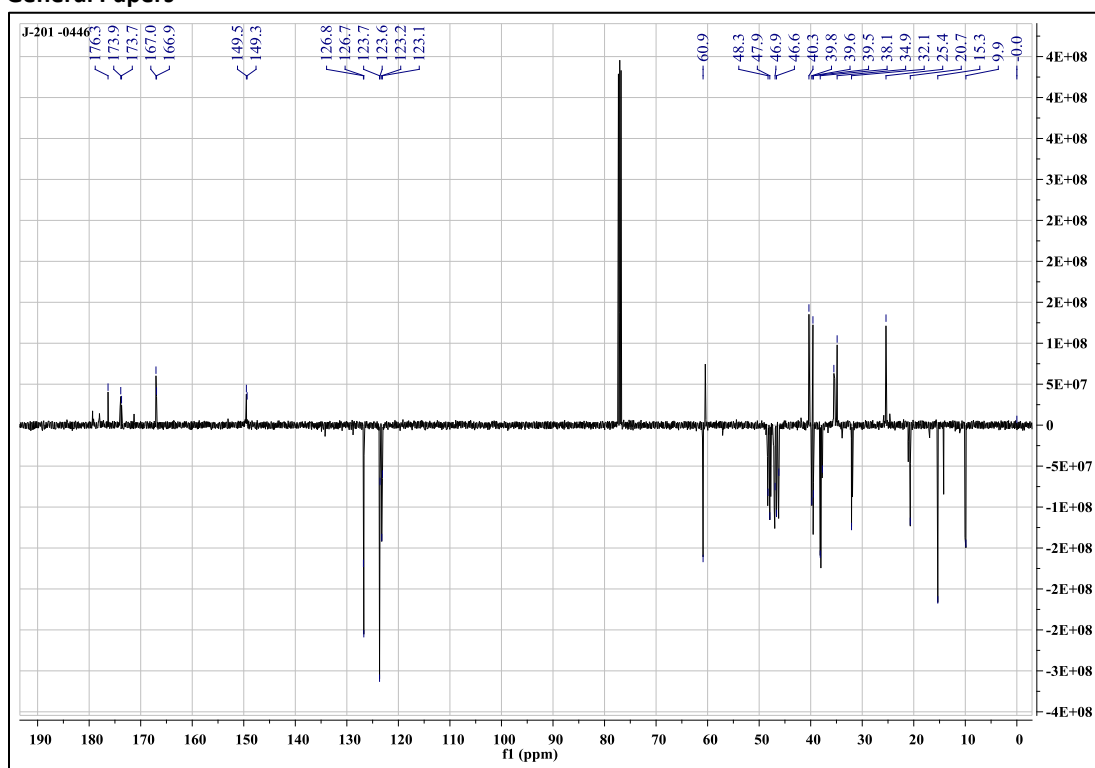


Figure S23. APT Spectrum of Compound **6d** (CDCl_3).

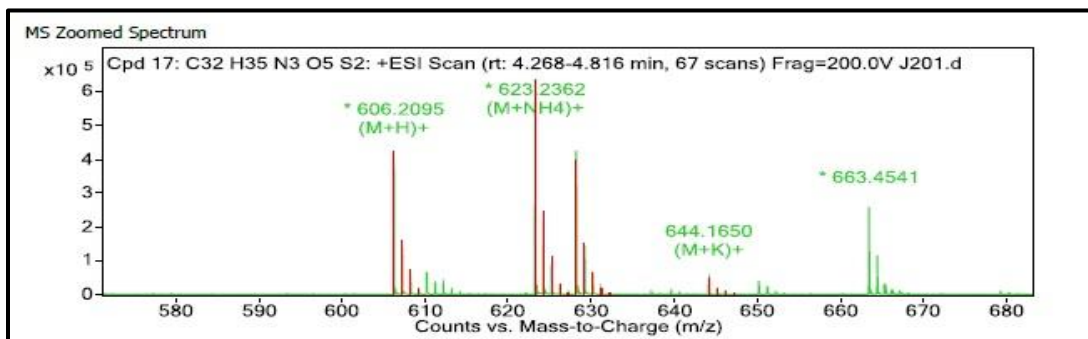


Figure S24. QToF Spectrum of Compound **6d**.

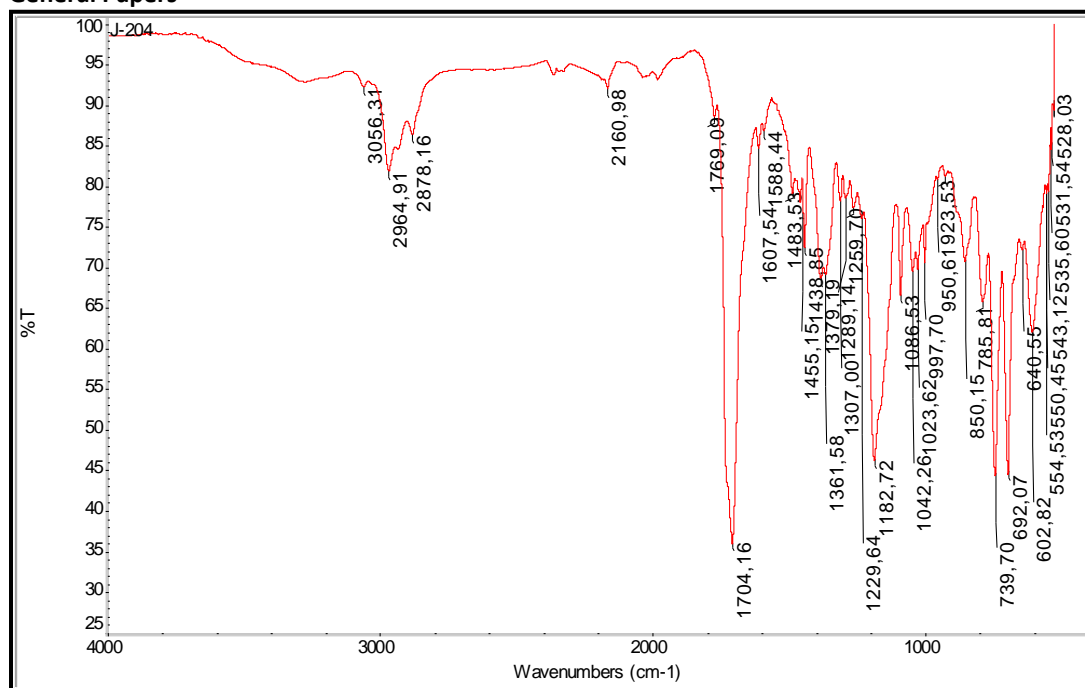
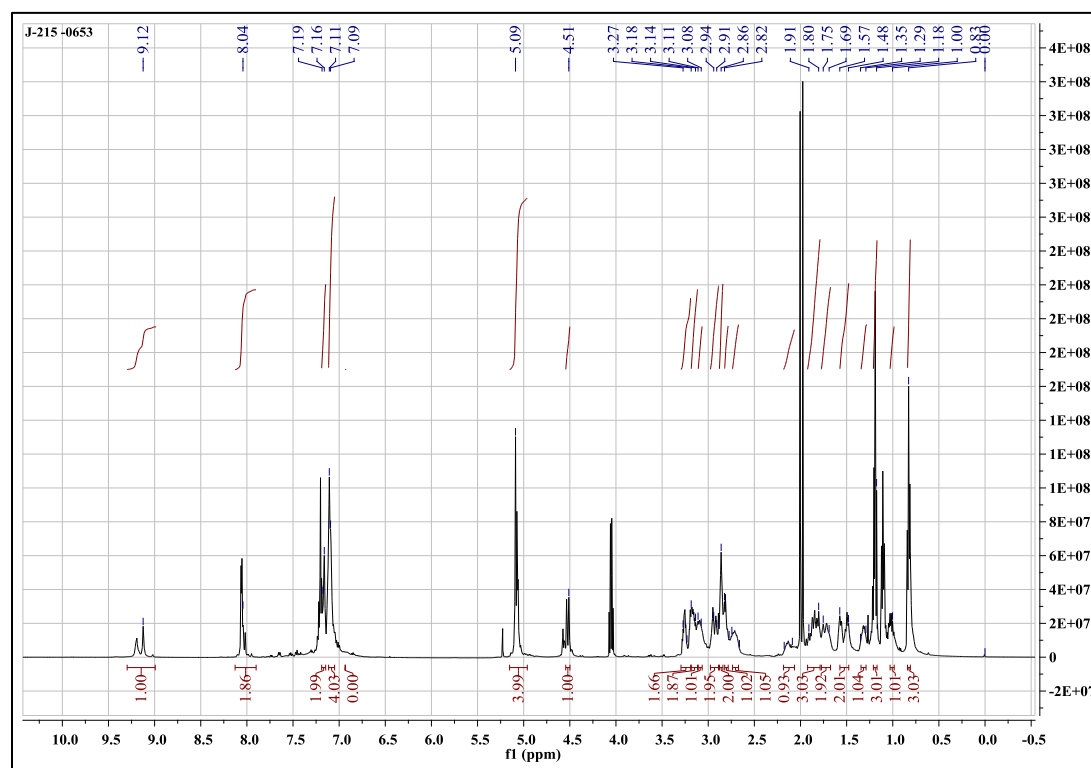


Figure S25. FTIR Spectrum of Compound 6e (ATR).

Figure S26. ¹H NMR Spectrum of Compound 6e (CDCl₃).

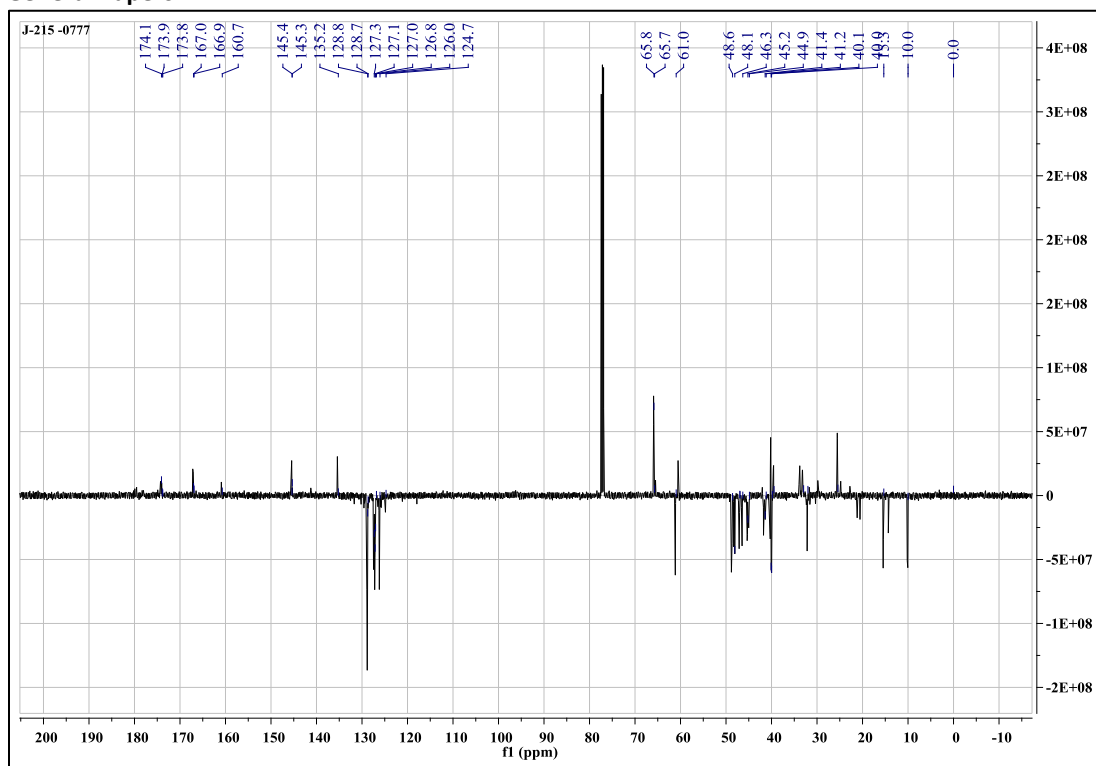


Figure S27. APT Spectrum of Compound **6e** (CDCl_3).

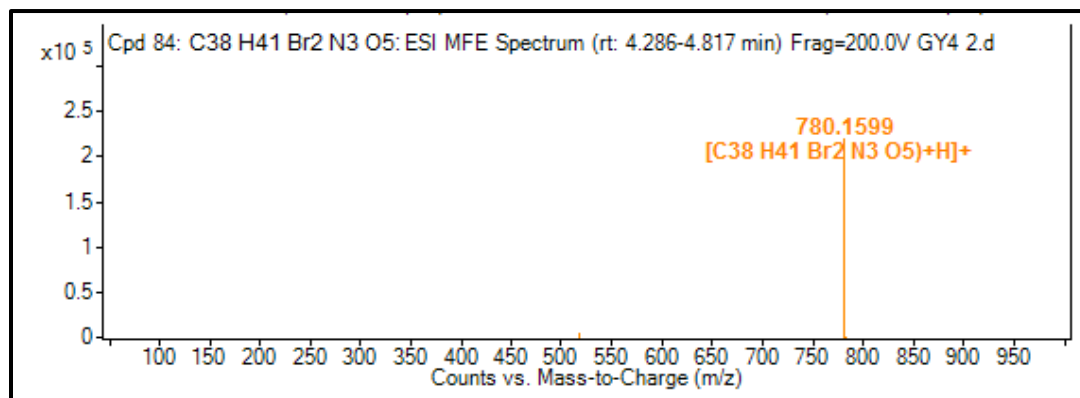


Figure S28. QToF Spectrum of Compound **6e**.

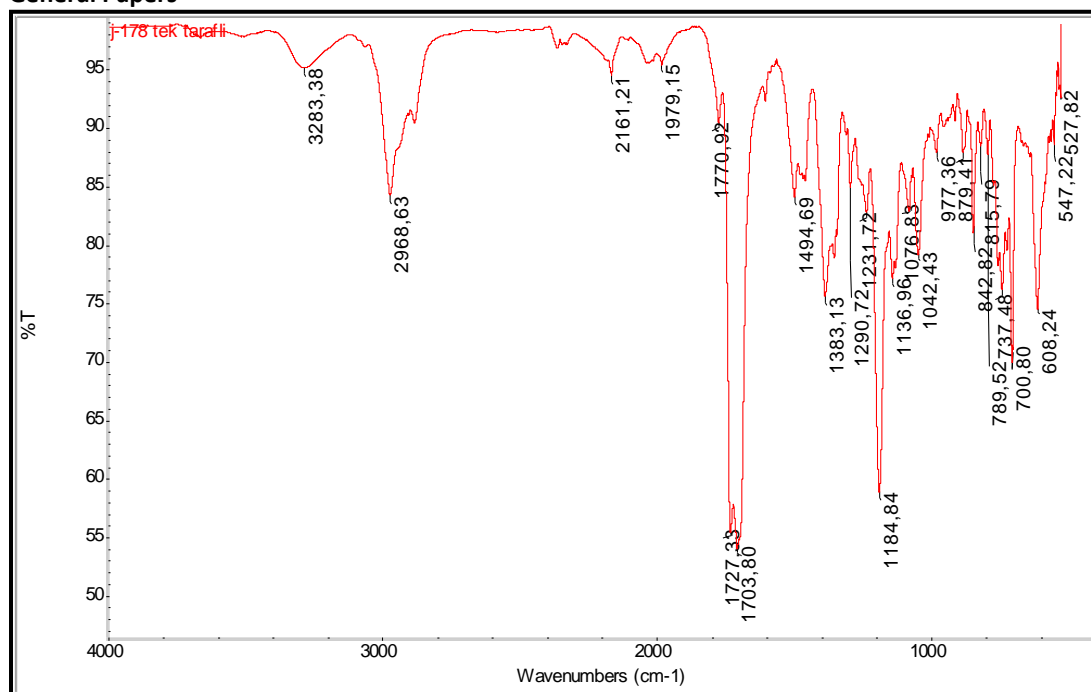
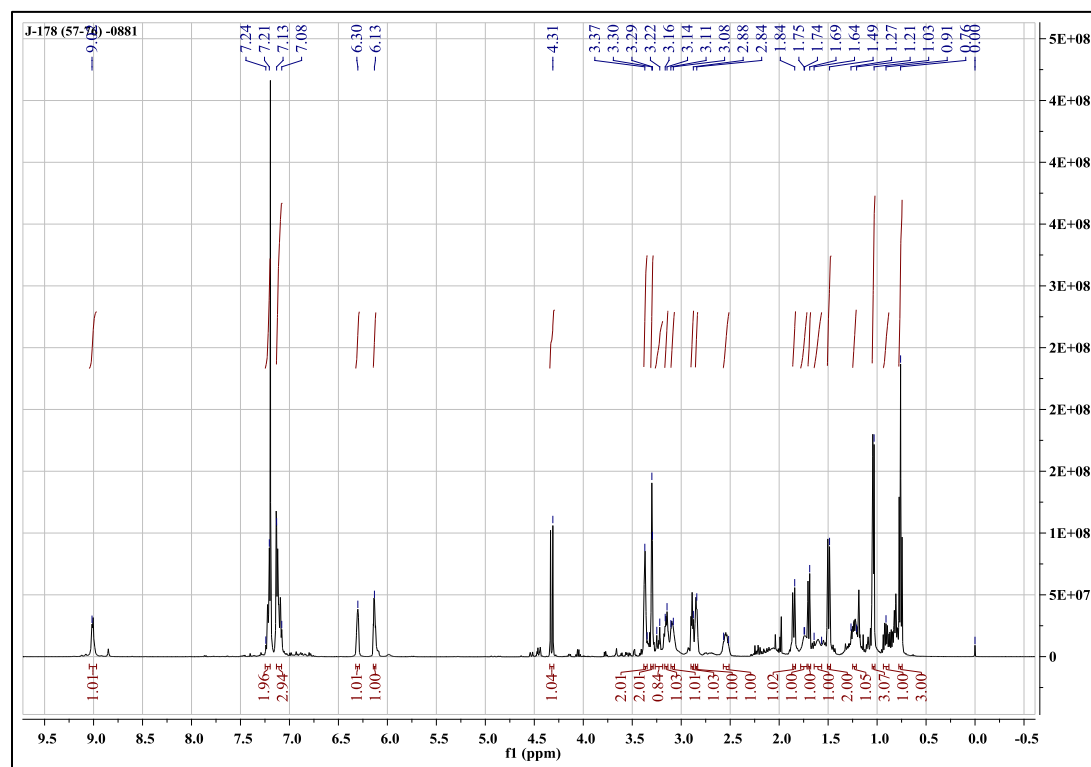


Figure S29. FTIR Spectrum of Compound 7a (ATR).

Figure S30. ^1H NMR Spectrum of Compound 7a (CDCl_3).

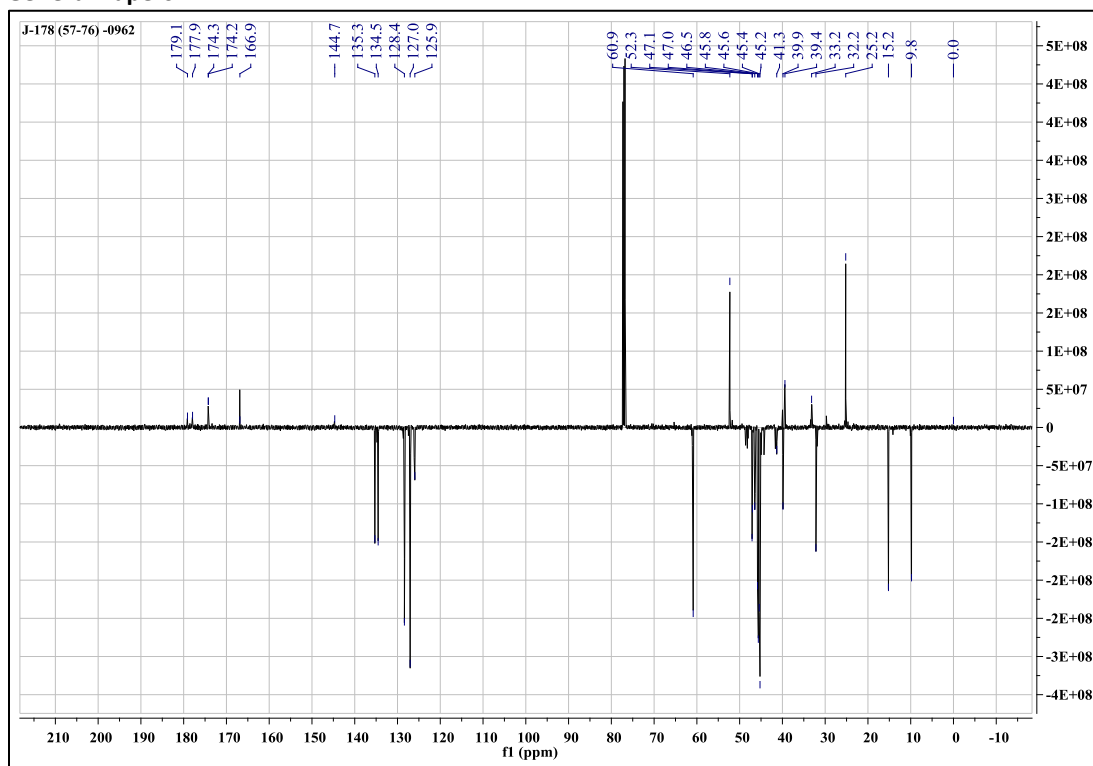


Figure S31. APT Spectrum of Compound 7a (CDCl₃).

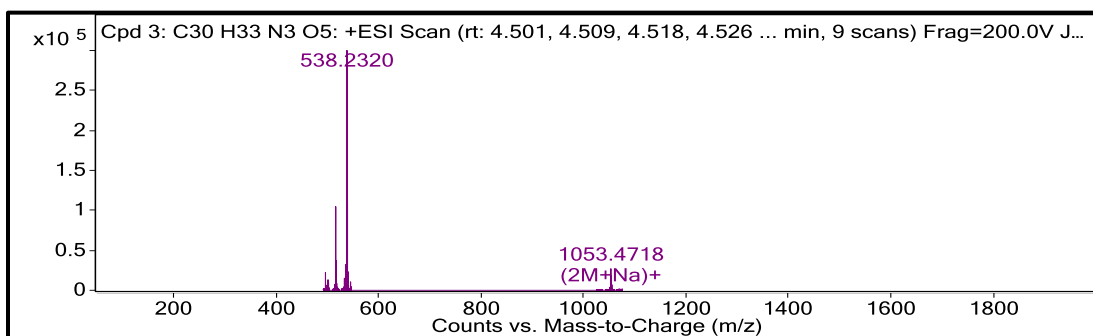


Figure S32. QToF Spectrum of Compound 7a.

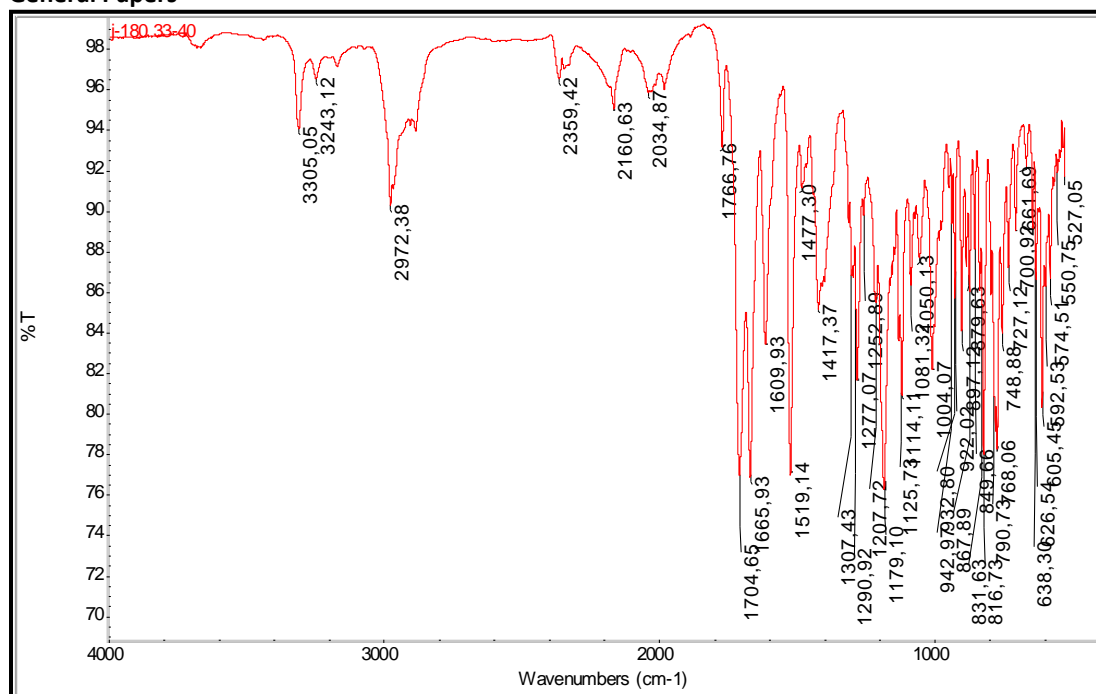


Figure S33. FTIR Spectrum of Compound 8 (ATR).

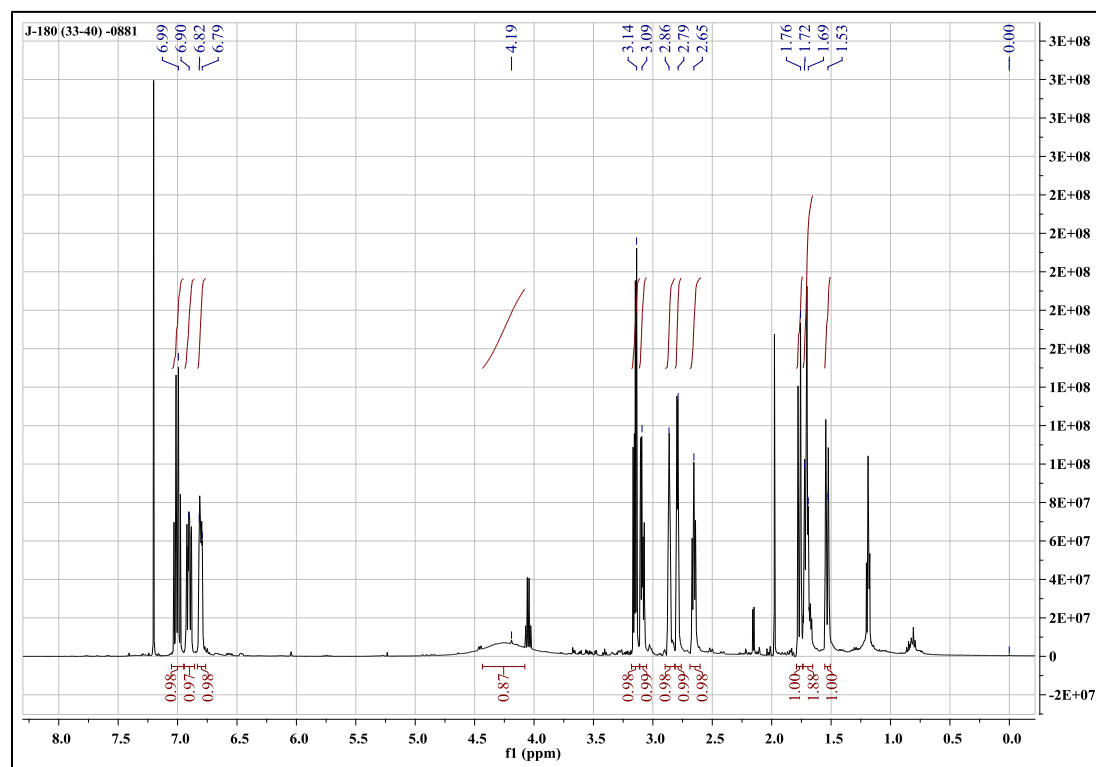


Figure S34. ¹H NMR Spectrum of Compound 8 (CDCl₃).

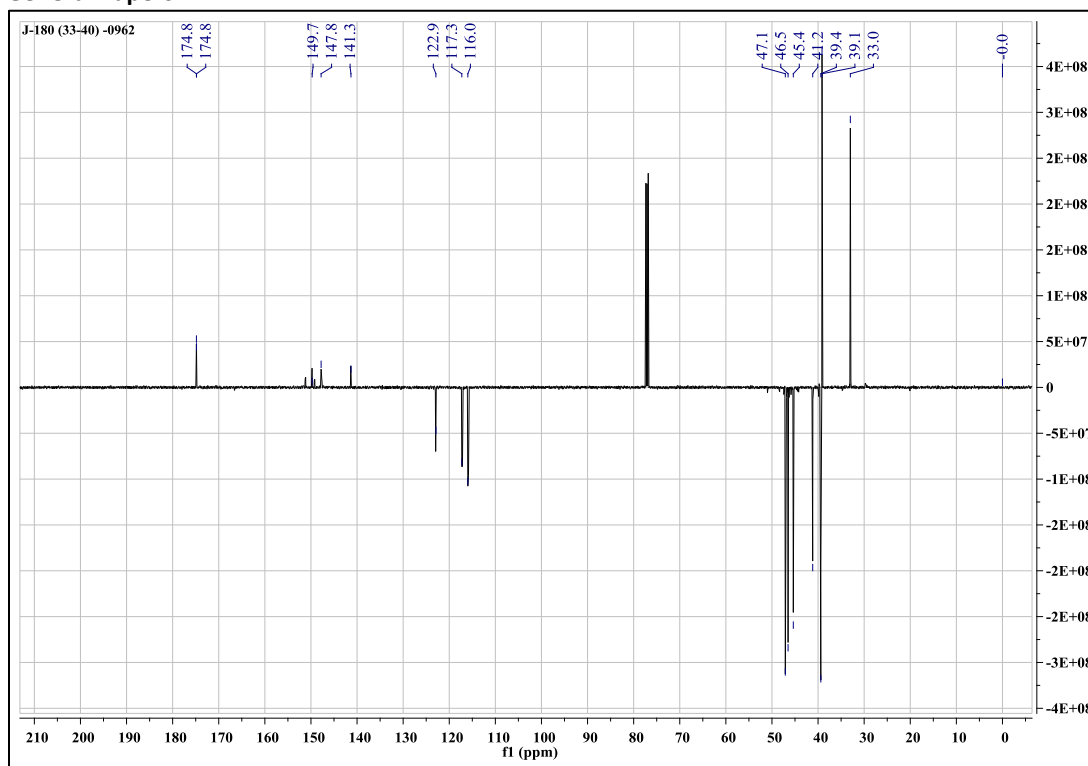
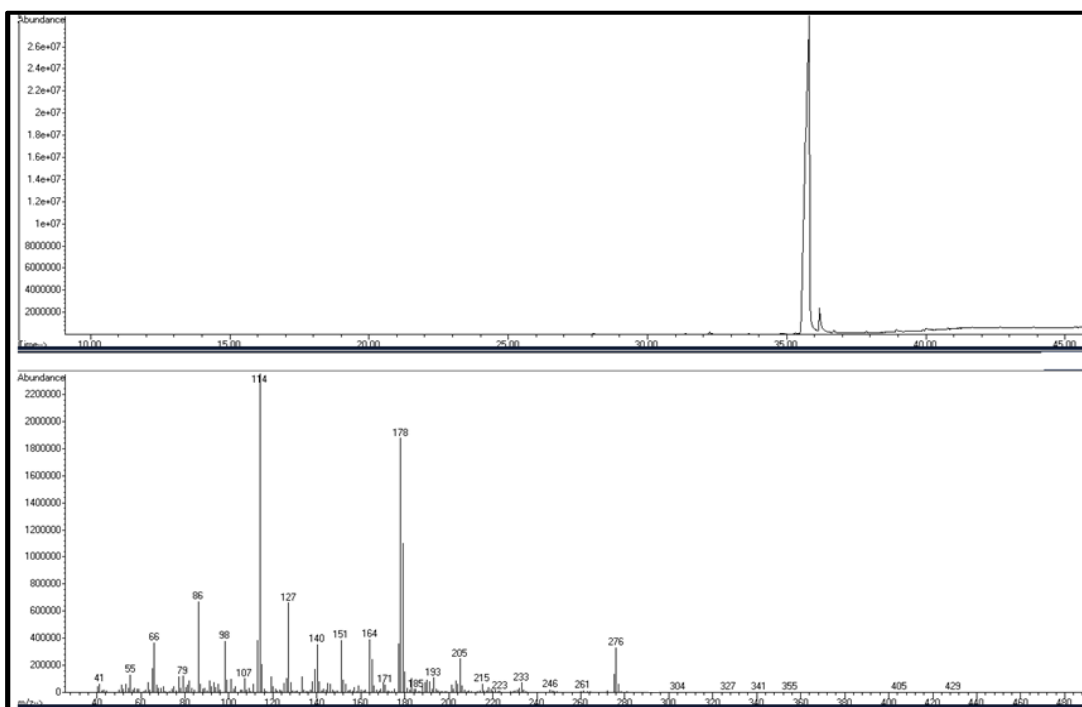
Figure S35. APT Spectrum of Compound 8 (CDCl₃).

Figure S36. GC-MS Spectrum of Compound 8.

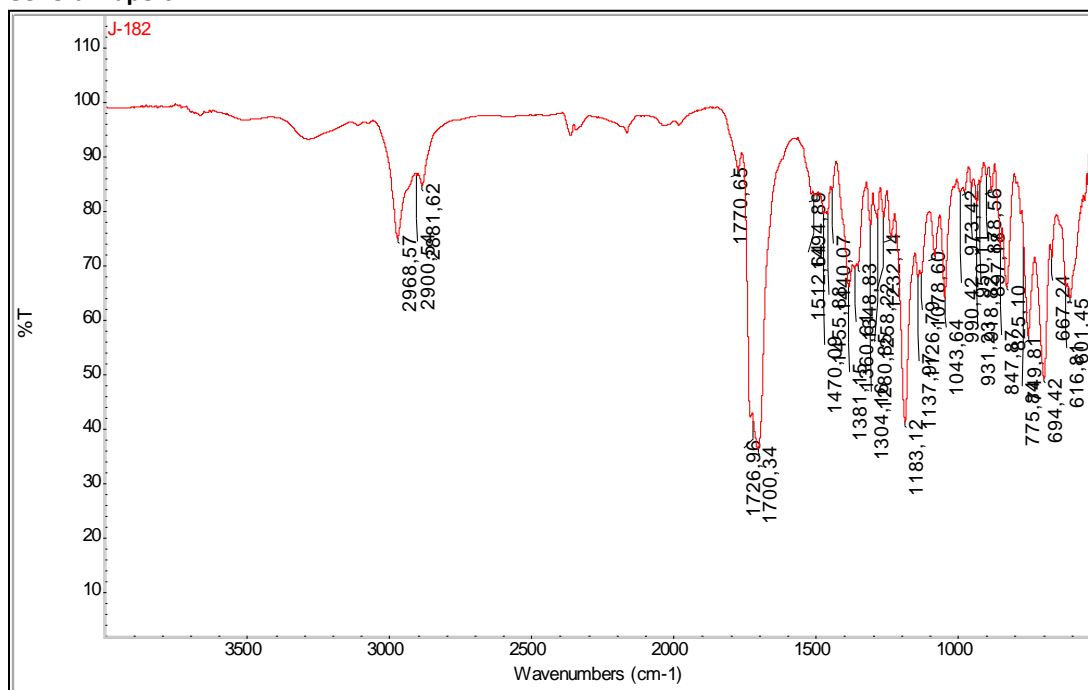
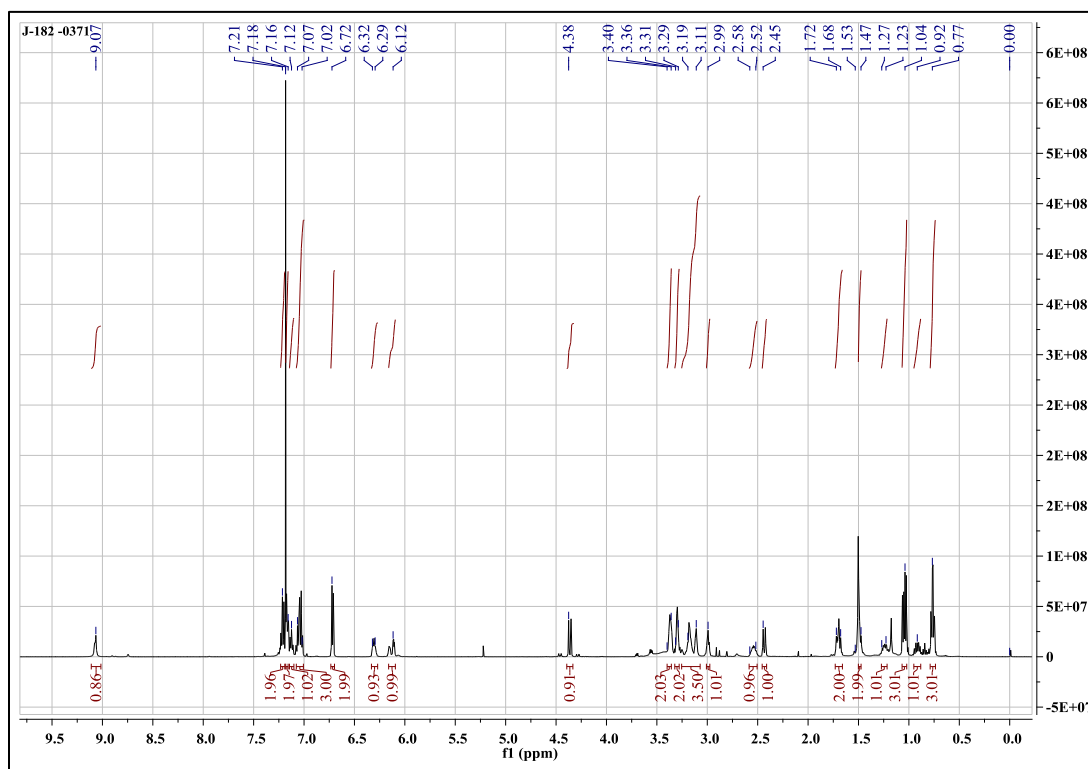


Figure S37. FTIR Spectrum of Compound 9a (ATR).

Figure S38. ^1H NMR Spectrum of Compound 9a (CDCl_3).

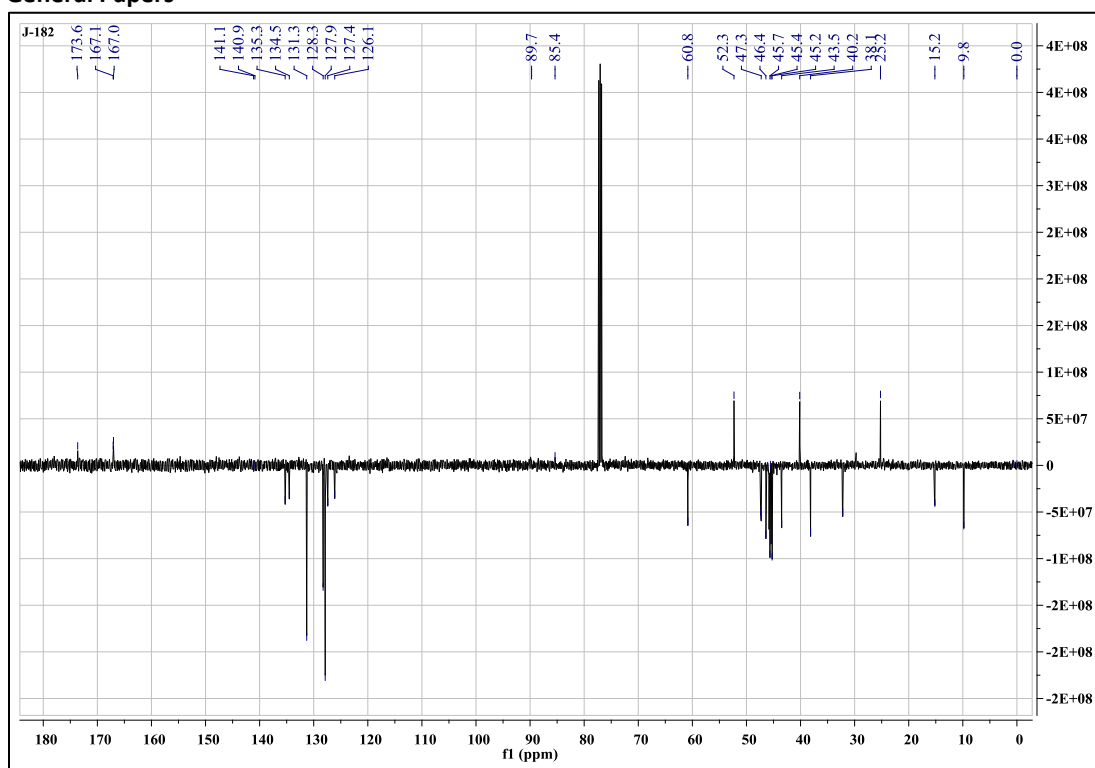
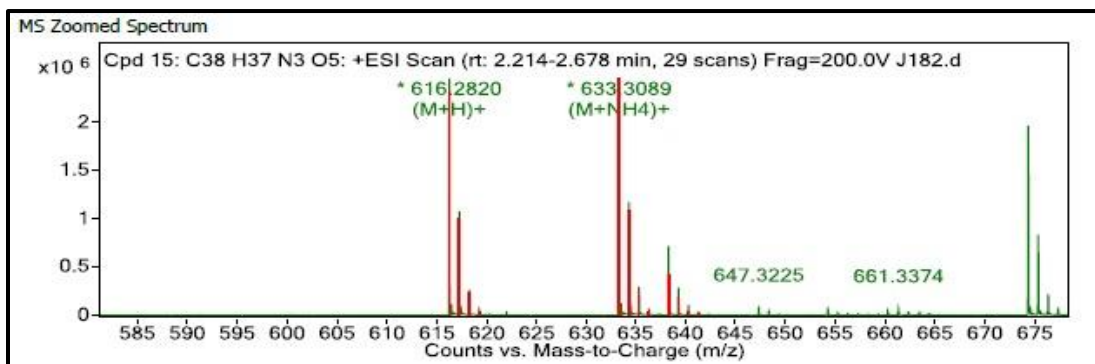
Figure S39. APT Spectrum of Compound 9a (CDCl₃).

Figure S40. QToF Spectrum of Compound 9a.

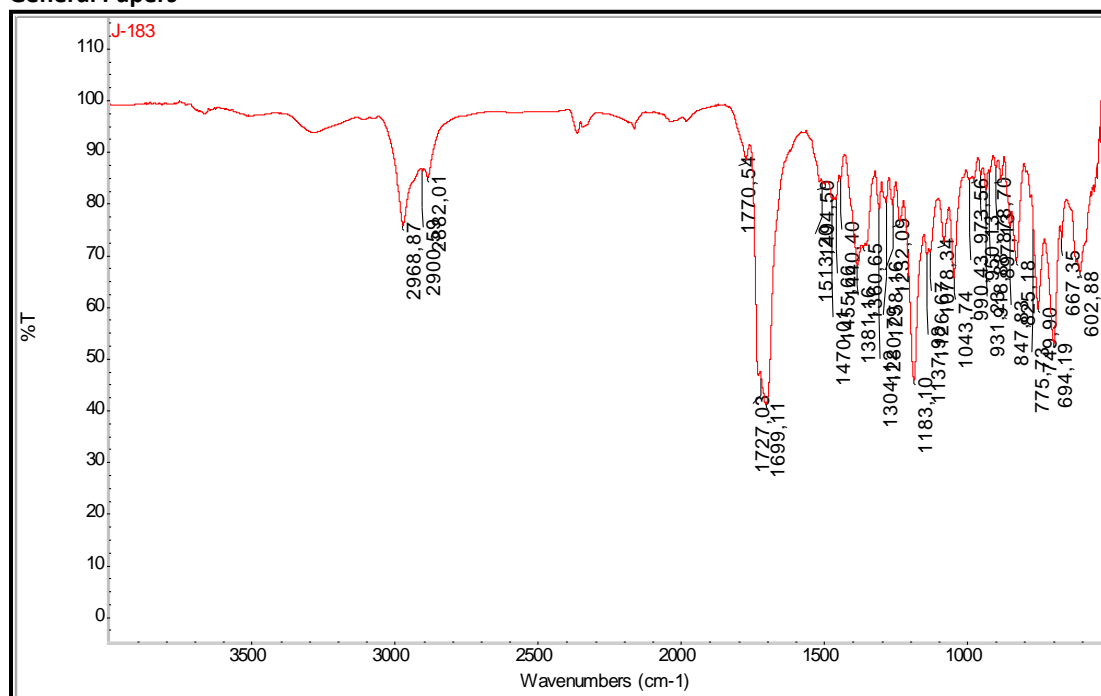
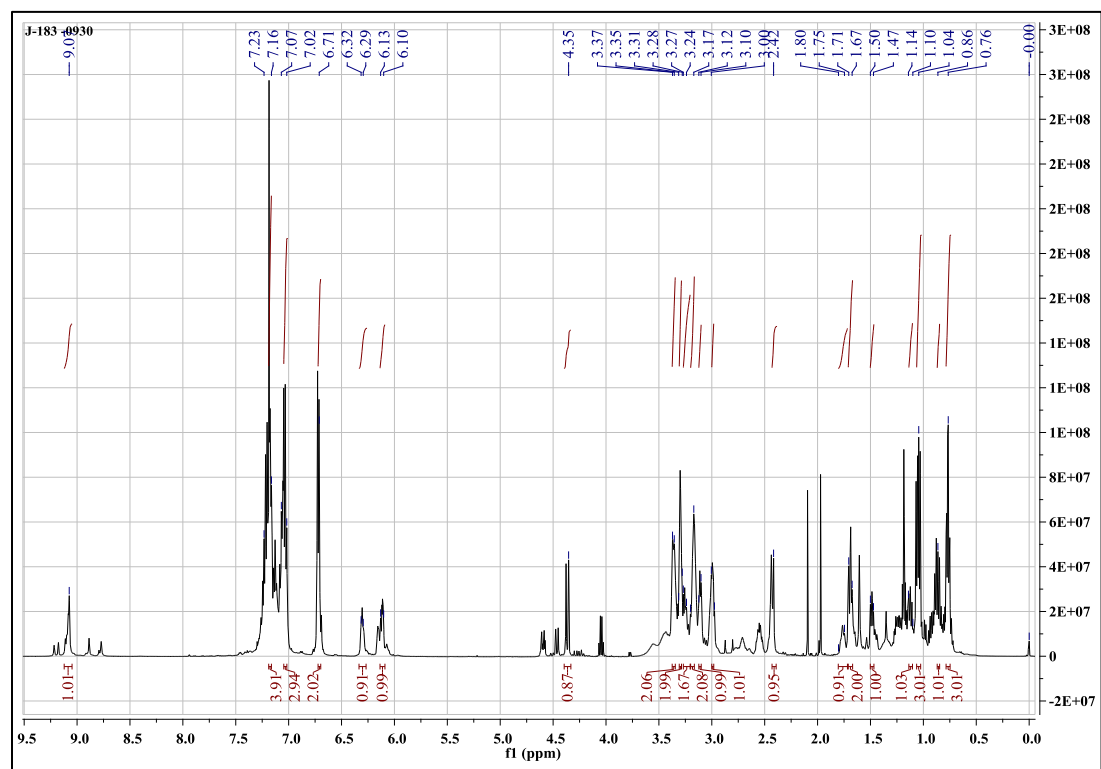
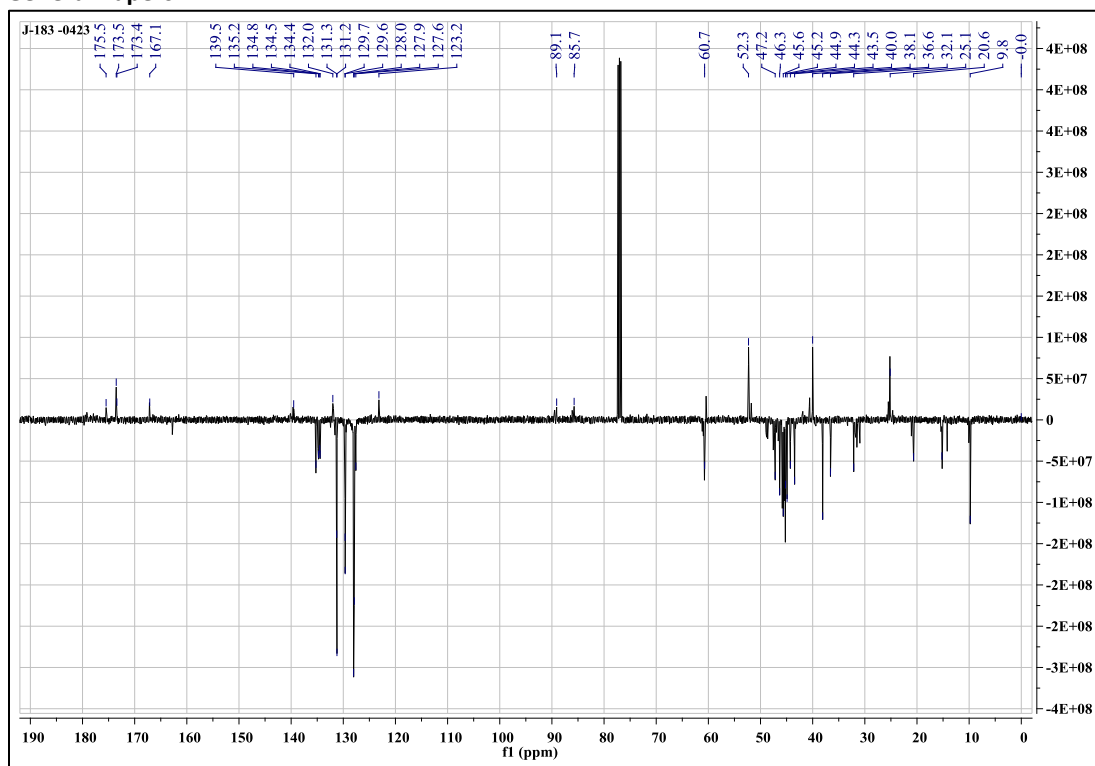
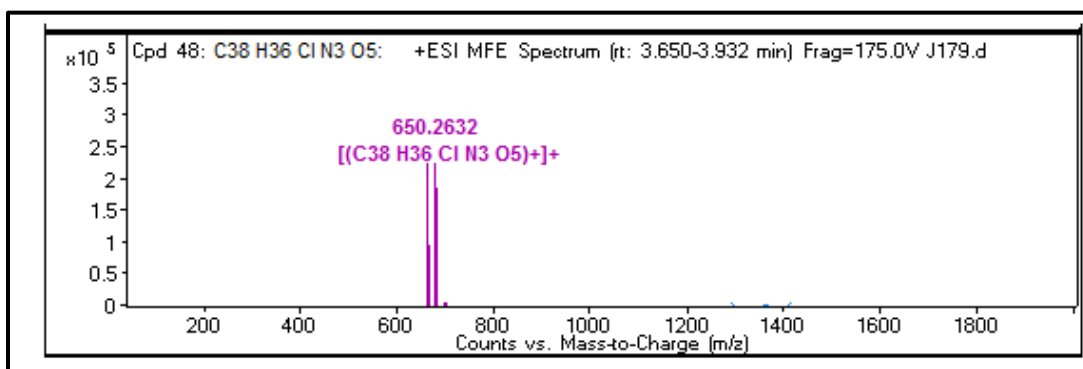


Figure S41. FTIR Spectrum of Compound 9b (ATR).

Figure S42. ¹H NMR Spectrum of Compound 9b (CDCl₃).

Figure S43. APT Spectrum of Compound **9b** (CDCl_3).Figure S44. QToF Spectrum of Compound **9b**.